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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,793	10/23/2003	Jeremy P. Meyers	C-3239	7158

7590 12/15/2005

M. P. Williams
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EXAMINER	
PARSONS, THOMAS H	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,793	MEYERS ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **"37" and "38" as shown on Figures 2 and 3**. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Page 2, line 17, suggest changing "In accord" to --In accordance--; and,

Page 3, line 27, "p ripheral" to --peripheral--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumata et al. (4,508,793) as further evidenced by Hahn (5,228,255).

Claim 1: Kumata et al. in Figures 1-6 disclose a fuel cell power plant comprising:

a plurality of fuel cells (12) arranged contiguously in a stack (11), each of the fuel cells having dimensions in width and height which are substantially equal to the width and height dimensions of the other fuel cells in the stack (11), whereby the edges of the fuel cells (12) combine to form substantially planar surfaces (see Figures 4 and 5);

a plurality of cooler plates (15), each having cooler inlet channels and cooler outlet channels and cooler flow channels extending between said inlet channels and the outlet channels (col. 4: 49-52), the cooler plates (15) being disposed between at least some of the fuel cells (col. 3: 65-67), the cooler plates (15) having principal width and height dimensions substantially the same as those of the fuel cells (12)(see Figures 4 and 5), each cooler plate (15) having a protrusion (15') containing the coolant (air) inlet channels and a protrusion containing the coolant (air) outlet channels, the protrusions extending outwardly from the edges of the cooler plates, thereby extending away from said plane (col. 4: 21-25);

an elastomeric rubber sealant material (Viton 34) completely surrounding each of the protrusions and extending between each one of the protrusions and a protrusion adjacent to the

one protrusion, the elastomeric sealant material extending on either side of all of the protrusions and extending around the plane sufficiently to form a sealing surface (col. 4: 41-48 and Figure 8); and

a manifold structure (17) contacting the sealant material (34) and defining coolant manifolds (18), the manifold structure defining between itself and the sealant material a (a) an (air) coolant inlet manifold (18a) in fluid communication with inlet channels or (b) an (air) coolant outlet manifold (18b) in fluid communication with the outlet manifold channels, and also defining between itself and the sealant material (c) a reactant gas (process air) inlet manifold (20a) or (d) a reactant gas (process air) outlet manifold (20b). See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

The recitations "**antifreeze** coolant inlet manifold" and "**antifreeze** coolant outlet manifold" have been considered, and construed as functional language that adds no additional structure to the manifold. However, because the manifold of Kumata et al. is structurally the same as that instantly claimed, the inlet and outlet manifold would be capable of functioning as an antifreeze inlet and outlet manifold.

Hahn is cited to disclose that Viton is a known elastomer rubber sealing material.

Claim 3: Kumata et al. in Figures 1-6 disclose a fuel cell power plant comprising:

a plurality of fuel cells (12) arranged contiguously in a stack (11), each of the fuel cells having dimensions in width and height which are substantially equal to the width and height dimensions of the other fuel cells in the stack (11), whereby the edges of the fuel cells (12) combine to form substantially planar surfaces (see Figures 4 and 5);

a plurality of cooler plates (15), each having cooler inlet channels and cooler outlet channels and cooler flow channels extending between said inlet channels and the outlet channels (col. 4: 49-52), the cooler plates (15) being disposed between at least some of the fuel cells (col. 3: 65-67), the cooler plates (15) having principal width and height dimensions substantially the same as those of the fuel cells (12)(see Figures 4 and 5), each cooler plate (15) having a protrusion (15') containing the coolant (air) inlet channels and a protrusion containing the coolant (air) outlet channels, the protrusions extending outwardly from the edges of the cooler plates, thereby extending away from said plane (col. 4: 21-25);

an elastomeric rubber sealant material (Viton 34) completely surrounding each of the protrusions and extending between each one of the protrusions and a protrusion adjacent to the one protrusion, the elastomeric sealant material extending on either side of all of the protrusions and extending around the plane sufficiently to form a sealing surface (col. 4: 41-48 and Figure 8); and

a manifold structure (17) contacting the sealant material (34) and defining coolant manifolds (18), the manifold structure defining between itself and the sealant material a (a) an (air) coolant inlet manifold (18a) in fluid communication with inlet channels or (b) an (air) coolant outlet manifold (18b) in fluid communication with the outlet manifold channels. See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

Hahn is cited to disclose that Viton is a known elastomeric rubber sealing material.

Claim 5: Kumata et al. disclose a manifold structure (17) also defining between itself and the sealant material a reactant gas inlet (20a) or outlet (20b) manifold. See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

Claim 6: Kumata et al. in Figures 3 and 4 disclose that the protrusions (projections 15') of each of the cooler plates (15) containing the coolant inlet channels are disposed on an edge of each cooler plate which is opposite to an edge of each cooler plate from which the protrusion containing the outlet channels extend.

Claim 7: Kumata et al. in Figures 3 and 4 disclose a manifold structure (17) for a fuel cell power plant (12). See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

The recitation "manifold structure **adapted** to be secured to a sealant surface on a fuel cell stack and forming with said sealant surface either (a) an antifreeze coolant inlet manifold or (b) an antifreeze coolant outlet manifold, and also forming with said sealant surface either (c) a reactant gas inlet manifold or (d) a reactant gas outlet manifold", has been considered. However, claim limitations that employ phrases of the type "adapted to" are typical of claim limitations which may not distinguish over prior art. It has been held that the recitation that an element is adapted to perform a function is not a positive limitation but only requires the ability to so perform. Because the manifold structure of Kumata et al. is structurally the same as that instantly claimed, it would be capable of so perfoming.

Claim 8: Kumata et al. in Figures 3 and 4 disclose a manifold structure (17) for a fuel cell power plant (12), the manifold structure having a first chamber defining either (a) a (air) coolant inlet manifold (17a) or (b) a (air) coolant outlet manifold (17b), and having a second chamber defining either (c) a reactant gas (process air) inlet manifold (20a) or (d) a reactant gas (process air) outlet manifold (20b).

The recitations "**antifreeze** coolant inlet manifold" and "**antifreeze** coolant outlet manifold" have been considered, and construed as functional language that adds no additional

structure to the manifold. However, because the manifold of Kumata et al. is structurally the same as that instantly claimed, the inlet and outlet manifold would be capable of functioning as an antifreeze inlet and outlet manifold.

Further, the recitation " manifold structure adapted to be secured to a sealant surface on a fuel cell stack" has been considered. However, claim limitations that employ phrases of the type "adapted to" are typical of claim limitations which may not distinguish over prior art. It has been held that the recitation that an element is adapted to perform a function is not a positive limitation but only requires the ability to so perform. Because the manifold structure of Kumata et al. is structurally the same as that instantly claimed, it would be capable of so perfoming.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. as applied to claim 1 above, and further in view of Hahn (5,228,255).

Kumata et al. are as applied, argued, and disclosed above, and incorporated herein.

Kumata et al. do not disclose that the elastomeric sealant material is a silicon rubber.

Hahn discloses that the elastomeric sealant material is Viton and a silicon rubber (col. 2: 62-col. 3: 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the sealant material of Kumata et al. with the silicon rubber of Hahn because Hahn teaches an elastomeric sealant material that would have created a tight seal between bonded surfaces thereby improving the overall integrity and performance of the fuel cell system.

7. Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumata et al. in view of Breault et al. (6,461,753) as further evidenced by Hahn.

Claim 1: Kumata et al. in Figures 1-6 disclose a fuel cell power plant comprising:

a plurality of fuel cells (12) arranged contiguously in a stack (11), each of the fuel cells having dimensions in width and height which are substantially equal to the width and height dimensions of the other fuel cells in the stack (11), whereby the edges of the fuel cells (12) combine to form substantially planar surfaces (see Figures 4 and 5);

a plurality of cooler plates (15), each having cooler inlet channels and cooler outlet channels and cooler flow channels extending between said inlet channels and the outlet channels (col. 4: 49-52), the cooler plates (15) being disposed between at least some of the fuel cells (col. 3: 65-67), the cooler plates (15) having principal width and height dimensions substantially the same as those of the fuel cells (12)(see Figures 4 and 5), each cooler plate (15) having a protrusion (15') containing the coolant (air) inlet channels and a protrusion containing the coolant (air) outlet channels, the protrusions extending outwardly from the edges of the cooler plates, thereby extending away from said plane (col. 4: 21-25);

an elastomeric rubber sealant material (Viton 34) completely surrounding each of the protrusions and extending between each one of the protrusions and a protrusion adjacent to the one protrusion, the elastomeric sealant material extending on either side of all of the protrusions and extending around the plane sufficiently to form a sealing surface (col. 4: 41-48 and Figure 8); and

a manifold structure (17) contacting the sealant material (34) and defining coolant manifolds (18), the manifold structure defining between itself and the sealant material a (a) an (air) coolant inlet manifold (18a) in fluid communication with inlet channels or (b) an (air) coolant outlet manifold (18b) in fluid communication with the outlet manifold channels, and also defining between itself and the sealant material (c) a reactant gas (process air) inlet manifold (20a) or (d) a reactant gas (process air) outlet manifold (20b). See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

Hahn is cited to disclose that Viton is a known elastomer rubber sealing material.

Kumata et al. do not disclose antifireeze.

Breault et al. disclose that it is known to direct antifreeze within manifolds into and out of a fuel cell stack (col. 4: 35-38, col. 6: 32-38, col. 8: 13-21, and col. 10: 2-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the coolant of Kumata et al. with the antifreeze of Breault et al. because Breault et al. teach directing antifreeze within manifolds into and out of a fuel cell stack that would have controlled the temperature within the fuel cell stack thereby improving the overall efficiency and performance of the fuel cell stack.

The Kumata et al. combination would, therefore, obviously provide the claimed antifreeze coolant inlet and outlet manifold.

Claim 7: Kumata et al. in Figures 3 and 4 disclose a manifold structure (17) for a fuel cell power plant (11) contacting a sealant material (34) and defining coolant manifolds (18), the manifold structure defining between itself and the sealant material a (a) an (air) coolant inlet manifold (18a) in fluid communication with inlet channels or (b) an (air) coolant outlet manifold (18b) in fluid communication with the outlet manifold channels, and also defining between itself and the sealant material (c) a reactant gas (process air) inlet manifold (20a) or (d) a reactant gas (process air) outlet manifold (20b). See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

Kumata et al. do not disclose antifireeze.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the coolant of Kumata et al. with the antifreeze of Breault et al. because Breault et al. teach directing antifreeze within manifolds into and out of a fuel cell stack that would have controlled the temperature within the fuel cell stack thereby improving the overall efficiency and performance of the fuel cell stack.

The Kumata et al. combination would, therefore, obviously provide the claimed antifreeze coolant inlet and outlet manifold.

Claim 8: Kumata et al. in Figures 3 and 4 disclose a manifold structure (17) for a fuel cell power plant (11) contacting a sealant material (34) and defining coolant manifolds (18), the manifold structure having a first chamber defining either (a) an (air) coolant inlet manifold (18a)

in fluid communication with inlet channels or (b) an (air) coolant outlet manifold (18b) in fluid communication with the outlet manifold channels, and having a second chamber defining either (c) a reactant gas (process air) inlet manifold (20a) or (d) a reactant gas (process air) outlet manifold (20b). See abstract, col. 2: 17-38, and col. 3: 50-col. 5: 44.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the coolant of Kumata et al. with the antifreeze of Breault et al. because Breault et al. teach directing antifreeze within manifolds into and out of a fuel cell stack that would have controlled the temperature within the fuel cell stack thereby improving the overall efficiency and performance of the fuel cell stack.

The Kumata et al. combination would, therefore, obviously provide the claimed antifreeze coolant inlet and outlet manifold.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas H Parsons
Examiner
Art Unit 1745

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PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER